REMARKS

Applicants respectfully requests reconsideration of this application as amended.

By this amendment, the outstanding §101 rejections have been addressed. Withdrawal of the rejection is respectfully requested.

The independent claims generally recite that the image has been decomposed into n subbands using a two-dimensional wavelet transform. As discussed, Lubin is completely silent regarding this feature.

More specifically, and as previously discussed, Lubin fails to teach, suggest or disclose using a two-dimensional wavelet transform, which was agreed to by the Examiner on page 4 of the Office Action.

As summarized in Applicant's Pre-Appeal Brief, Hou does not teach, suggest, or disclose wavelet transforms.

The Office Action asserts that "Hou teaches using a 2-dimensional wavelet transform in the form of the "Gabor wavelet" in col. 9, lines 31-33."

The relied upon portion of Hou states:

> Referring to FIG. 3, the MLT kernel provides a modulation function F(k,n) of the window function W(n). Weighing coefficients are defined by the product of the modulation function F(k,n) and the window function W(n). The MLT is a transform having a modulation function and a window function operating on overlapping blocks of input data. The preferred MLT has a discrete cosine modulation function and a half sine wave window function, but other modulation and window functions could be implemented using window and input data multiplication and using IIR filters of the modulation function. For examples, Gabor wavelet and local cosine transforms could also be implemented with a window product and an IIR filter operating or that window product. The MLT, Gabor wavelet and local cosine transforms are defined by weighing coefficients. The preferred implementation has weighing coefficients of eight MLTs having values listed in the table of weighing coefficients and also plotted in FIG. 3.

As discussed, the MLT of Hou is a hybrid transform – not a wavelet transform.

Hou states that "but other *modulation and window functions* could be implemented using window and input data multiplication and using IIR filters of the modulation function" (Emphasis Added) Hou then states "For examples, Gabor wavelet and local cosine transforms could also be implemented with a window product and an IIR filter operating or that window product. The MLT, Gabor wavelet and local cosine transforms are defined by weighing coefficients."

Thus, it is clear from the above that Hou suggests that a Gabor wavelet could be used as an example of a *modulation and window function – not a transform.*

This is further emphasis by the fact that a Gabor filter, named after Dennis Gabor, is a *linear filter* used for edge detection. A Gabor filter is a Gaussian kernel function modulated by a sinusoidal plane wave. In Hou, Gabor wavelet and local cosine transforms appear to be disclosed in combination with a window product and an IIR filter operating or that window product.

The Office Action then asserts that:

> Lubin contained a device which differed the claimed process by the substitution of the wavelet transform. Hou teaches the substituted step of using the Gabor wavelet and their functions were known in the art to compress images. Lubin's step of using transform coefficients could have been substituted with Hou's Gabor wavelet and the results would have been predictable and resulted in compressing images in a "very compact" (abstract of Daugman) manner.

As previously discussed, Lubin is directed toward a method and apparatus for training a neural network to learn and use fidelity metric as a control mechanism. In Lubin, as discussed on col. 8, beginning on line 46, the parameters relied upon by the Office Action are for *training* of the neural network. Specifically, Lubin states:

> The below discussion for *training a NN* to replace the quality metric generator can be followed to generate an analogous process to *train a NN to replace the controller*. In order to *train a NN* as a low complexity video quality metric generator, a large database is generated to collect the decompressed video sequences and their perceived fidelity (as calculated by an already known, possibly more complex video quality metric generator).
>
> The encoder loop in FIG. 8 generates this database of decompressed video sequences and quality ratings. Note that the NN could alternatively be trained directly on ratings of video sequences obtained in experiments using human subjects. For each of the video sequences in the database, the NN computes a metric (labeled "NN output" in FIGS. 7 & 8), given the "current state" of its parameters. An error is generated by subtracting the NN output from the target metric (labeled "desired output" in FIGS. 7 and 8 via subtractors 720 and 820) as calculated by the known metric. Next, the NN parameters are adapted such that the error would be reduced if the video sequence (database) was presented again to the NN. *This iterative process (the training phase) continues until it is no longer possible to reduce the NN output error by adaptation of its parameters*. If the error is acceptably small, the ***NN can now serve as a computational device to measure video quality***. Once the NN has been completely trained, the subtractors in FIGS. 7 and 8 are removed, and the NN is substituted for the appropriate component in the QME system, forming one of the NN-QME systems shown in FIGS. 4-6. (Emphasis Added)

It is thus abundantly clear that Lubin's parameters are **not** used for compression as claimed. Moreover, the asserted combination of the references by the Office does not make technical sense.

Specifically, the Office Action appears to by trying to assert that the Gabor wavelet of Hou could be substituted for Lubin's using of "transform coefficients." As pointed out above, in Lubin, the parameters are for *training* of the neural network. In Lubin, the encoding system 300 employs video compression methods that generally include a mechanism for controlling bit allocation to produce, for the specified bit rate, the *best possible quality decoded image* sequence. Neither Hou nor Lubin teach, suggest or disclose iteratively adapting the one or more parameters used on the first image for compression of a next image, wherein the one or more parameters include at least one truncation parameter. In contrast, in Lubin is looking for a *best possible quality decoded image.*

Secondly, in Hou, teaches that other *modulation and window functions* could be implemented using window and input data multiplication and using IIR filters of the modulation function. Lubin has no modulation nor window functions.

Applicants respectfully submit that it is entirely unclear as to how the asserted combination as proposed by the Examiner would work. Moreover, Applicants respectfully submit one of ordinary skill in the art would not combine the references in that the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose. Accordingly, there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) Furthermore, the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified. Thus, the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

For at least the same reasons, the asserted combination of Lubin and Daugman is not sustainable in that the criteria for a maintainable rejection under §103 are not present.

The dependent claims are further distinguishable at least based on the above and the additional features recited therein.

Applicants respectfully submit the application is in condition for allowance. A prompt notice of allowance is respectfully solicited.

Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is encouraged to contact Applicants undersigned representative at the telephone number listed below.

The Commissioner is hereby authorized to charge to deposit account number 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby petitioned.

Respectfully submitted,

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Date: 22 Dec 10

By: _____

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